CPC COOPERATIVE PATENT CLASSIFICATION

B67C CLEANING, FILLING WITH LIQUIDS OR SEMILIQUIDS, OR EMPTYING, OF BOTTLES, JARS, CANS, CASKS, BARRELS, OR SIMILAR CONTAINERS, NOT OTHERWISE PROVIDED FOR FUNNELS

Guide heading:

B67C 3/00 **Bottling liquids or semiliquids**
Filling jars or cans with liquids or semiliquids using bottling or like apparatus
Filling casks or barrels with liquids or semiliquids (filling containers with liquids or semiliquids using apparatus other than bottling or like apparatus B65B 3/00)

B67C 3/001 . {Cleaning of filling devices }
B67C 3/002 . . {using cups or dummies to be placed under the filling heads }
B67C 3/004 . . . {permanently attached to the filling machine and movable between a rest and a working position }
B67C 3/005 . . { Cleaning outside parts of filling devices }

B67C 3/007 . {Applications of control, warning or safety devices in filling machinery (flow-control B67C 3/28) }

B67C 3/008 . { Bottling or like apparatus specially adapted to be transported, e.g. positioned on a truck or in a container }

B67C 3/02 . Bottling liquids or semiliquids
Filling jars or cans with liquids or semiliquids using bottling or like apparatus
B67C 3/023 . . { Filling multiple liquids in a container (B67C 3/208 takes precedence) }
B67C 3/026 . . . { Filling the liquids simultaneously }
B67C 3/04 . . without applying pressure
B67C 3/045 . . . { Apparatus specially adapted for filling bottles with hot liquids }
B67C 3/06 . . using counterpressure, i.e. filling while the container is under pressure
B67C 3/065 . . . {Filling siphons, e.g. carbonating beverages during filling (siphons B67D 1/0456) }
B67C 3/08 . . . and subsequently lowering the counterpressure
B67C 3/10 . . . preliminary filling with inert gases, e.g. carbon dioxide
B67C 3/12 . . . Pressure-control devices
B67C 3/14 . . . specially adapted for filling with hot liquids
B67C 3/16 . . using suction
B67C 3/18 . . using siphoning arrangements
B67C 3/20 . . with provision for metering the liquids to be introduced, e.g. when adding syrups (measuring volume, or volume flow, in general G01F)
B67C 3/202 . . . {by weighing }
B67C 3/204 . . . {using dosing chambers }

B67C 3/206 . . . {using arrangements of cylinders and pistons (B67C 3/208 takes precedence) }

B67C 3/208 . . . {specially adapted for adding small amounts of additional liquids, e.g. syrup }

B67C 3/22 . . Details

B67C 3/222 . . . {Head-space air removing devices, e.g. by inducing foam }

B67C 3/223 . . . . {by squeezing the container elastically }

B67C 3/225 . . . { Means for filling simultaneously, e.g. in a rotary filling apparatus or multiple rows of containers }

B67C 3/24 . . . Devices for supporting or handling bottles (transport or storing devices in general B65G)

B67C 3/242 . . . . {engaging with bottle necks (B67C 3/26 takes precedence) }

B67C 3/244 . . . . {Bottle lifting devices actuated by jacks, e.g. hydraulic, pneumatic (B67C 3/242 takes precedence) }

B67C 3/246 . . . . {Bottle lifting devices actuated by cams (B67C 3/242 takes precedence) }

B67C 3/248 . . . . {Bottle lifting devices actuated by threads B67C 3/242 takes precedence }

B67C 3/26 . . . Filling-heads
Means for engaging filling-heads with bottle necks

B67C 3/2608 . . . . {comprising anti-dripping means }

B67C 3/2611 . . . . . {to prevent dripping from sources other than the filling product, e.g. deflectors for vapours condensed on the outer surface of the filling device }

B67C 3/2614 . . . . {specially adapted for counter-pressure filling }

B67C 3/2617 . . . . . {the liquid valve being opened by mechanical or electrical actuation }

B67C 3/262 . . . . . {and the filling operation stopping when the liquid rises to a level at which it closes a vent opening }

B67C 3/2622 . . . . . {and the filling operation stopping when probes, e.g. electrical or optical probes, sense the wanted liquid level (level control in general G01F) }

B67C 3/2625 . . . . . {the liquid valve being opened automatically when a given counter-pressure is obtained in the container to be filled }

B67C 3/2628 . . . . . {and the filling operation stopping when the liquid rises to a level at which it closes a vent opening }

B67C 3/2631 . . . . . {and the filling operation stopping when probes, e.g. electrical or optical probes, sense the wanted liquid level (level control in general G01F) }

B67C 3/2634 . . . . {specially adapted for vacuum or suction filling }

B67C 3/2637 . . . . {comprising a liquid valve opened by relative movement between the container and the filling head }

B67C 3/264 . . . . . {and the filling operation being carried out manually }

B67C 3/2642 . . . . {specially adapted for sterilising prior to filling }

B67C 3/28 . . . Flow-control devices, e.g. using valves ({B67C 3/2617, B67C 3/2625, B67C 3/2637 take precedence }; valves in general F16K)

B67C 3/281 . . . . {Profiled valve bodies for smoothing the flow at the outlet of the filling nozzle }

B67C 3/282 . . . . { related to filling level control (B67C 3/2617, B67C 3/2625 take precedence) }

B67C 3/283 . . . . . { using pressure sensing means }

B67C 3/284 . . . . . { using non-liquid contact sensing means (B67C 3/283 takes precedence)

}

B67C 3/285 . . . . . { using liquid contact sensing means (B67C 3/283 takes precedence) }

B67C 3/286 . . . . { related to flow rate control, i.e. controlling slow and fast filling phases }

B67C 3/287 . . . . { related to flow control using predetermined or real-time calculated parameters }

B67C 3/288 . . . . . { using master-slave controls }

B67C 3/30 . Filling of barrels or casks

B67C 3/32 . . using counterpressure, i.e. filling while the container is under pressure

B67C 3/34 . . Devices for engaging filling-heads with filling-apertures

B67C 7/00 **Concurrent cleaning, filling, and closing of bottles**
Processes or devices for at least two of these operations

B67C 7/0006 . {Conveying; Synchronising }

B67C 7/0013 . . {Synchronising }

B67C 7/002 . . {General lay-out of bottle-handling machines }

B67C 7/0026 . . {the containers travelling along a linear path }

B67C 7/0033 . . . {the operation being performed batch-wise }

B67C 7/004 . . {the containers travelling along a circular path }

B67C 7/0046 . . . {Infeed and outfeed devices }

B67C 7/0053 . . . . {using grippers (for supporting bottle necks during filling B67C 3/242) }

B67C 7/0073 . {Sterilising, aseptic filling and closing (B67C 3/2642 takes precedence) }

B67C 7/008 . . {comprising a cleaning step between two closing steps }

B67C 7/0086 . . {Sterilisation being restricted to the area of application of the closure }

B67C 7/0093 . {Lever action devices operated by hand or foot }

B67C 9/00 **Devices for emptying bottles, not otherwise provided for** {during preparation of alcoholic beverages except beer C12G 1/00 }

B67C 11/00 **Funnels, e.g. for liquids** (filter funnels B01D 23/28; volume flow-meters G01F)

B67C 11/02 . without discharge valves

B67C 11/04 . with non-automatic discharge valves

B67C 11/06 . with automatic discharge valves

B67C 11/063 . . { for preventing spilling or dripping }

B67C 11/066 . . { for preventing overflow of the filled container }

Guide heading:

B67C 2003/00 **Bottling liquids or semiliquids**
Filling jars or cans with liquids or semiliquids using bottling or like apparatus
Filling casks or barrels with liquids or semiliquids (filling containers with liquids or semiliquids using apparatus other than bottling or like apparatus B65B 3/00)

B67C 2003/02 . Bottling liquids or semiliquids
Filling jars or cans with liquids or semiliquids using bottling or like apparatus

B67C 2003/22 .. Details

B67C 2003/221 ... Automatic exchange of components

B67C 2003/226 ... Additional process steps or apparatuses related to filling with hot liquids, e.g. after-treatment

B67C 2003/227 ... Additional apparatus related to blow-moulding of the containers, e.g. a complete production line forming filled containers from preforms

B67C 2003/228 ... Aseptic features

B67C 2003/26 ... Filling-heads
Means for engaging filling-heads with bottle necks

B67C 2003/2602 .... Details of vent-tubes

B67C 2003/2605 ..... Piston-like check valves

B67C 2003/2645 .... Means to avoid overfilling by preventing gas returning from the container into the filling tank via the liquid valve, e.g. mesh screens

B67C 2003/2648 .... Inflatable gaskets for sealingly engaging bottle necks or bodies

B67C 2003/2651 .... The liquid valve being carried by the vent tube

B67C 2003/2654 ..... specially adapted for bottom filling, e.g. the liquid valve being located at the lowest part of the vent tube

B67C 2003/2657 .... specially adapted for filling cans

B67C 2003/266 .... Means for centering the container with the filling head

B67C 2003/2662 ..... with means for detecting the presence of a container

B67C 2003/2665 .... Means for locking the filling head in a given position once engaged by a container

B67C 2003/2668 .... Means for adapting the filling head to various sizes of containers

B67C 2003/2671 .... Means for preventing foaming of the liquid

B67C 2003/2674 ..... by creating a conical shaped flow directed to the container wall at the container neck height

B67C 2003/2677 ..... by means of a deflector

B67C 2003/268 ..... by means of a flow channel integral with the filling nozzle

B67C 2003/2682 ..... by creating a conical shaped flow directed to the container wall just above the container bottom

B67C 2003/2685 .... Details of probes

B67C 2003/2688 .... Means for filling containers in defined atmospheric conditions

B67C 2003/2691 ..... by enclosing one container in a chamber

B67C 2003/2694 ..... by enclosing a set of containers in a chamber

B67C 2003/2697 ..... by enclosing the container partly in a chamber

B67C 2007/00 **Concurrent cleaning, filling, and closing of bottles**
Processes or devices for at least two of these operations

B67C 2007/0006 . {Conveying; Synchronising }
B67C 2007/006 . . Devices particularly adapted for container filling
B67C 2007/0066 . . Devices particularly adapted for container closing

B67C 2011/00 **Funnels, e.g. for liquids** (filter funnels B01D 23/28; volume flow-meters G01F)

B67C 2011/02 . without discharge valves
B67C 2011/022 . . for draining oil from engines
B67C 2011/025 . . . with integral tool for opening the draining plug
B67C 2011/027 . . for filling oil into engines

B67C 2011/20 . comprising closures, e.g. stoppers, caps or lids

B67C 2011/30 . comprising venting means

B67C 2011/40 . comprising level indicating means